AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A magnetic resonance imaging system for producing an image based on data acquired from an object to be imaged, the data being acquired using a pulse sequence ~~applied to the object and formed to include~~including a pre-pulse, an RF excitation pulse, an encoding gradient pulse, and a reading gradient pulse, the magnetic resonance imaging system comprising:

a memorization unit configured to memorize ~~information indicative of~~ the pulse sequence

~~of~~in which the encoding gradient pulse is applied to the object such that ~~has an encoding amount determined to allow a~~ data is acquired ~~acquisition position in a k-space to be directed~~ outwardly from a center of ~~the~~ k-space with respect to time,

~~of~~in which a train of pulses including the RF excitation pulse, the encoding gradient pulse, and the reading gradient pulse is applied to the object such that ~~repeated to allow~~ the number of times of data acquisition in ~~the k-space to become larger as approaching to~~ a central region in k-space is larger than the number of times of data acquisition in an outer region in ~~the~~ k-space, and

~~of~~in which the pre-pulse is ~~formed to be reduced in an application rate to the RF excitation pulse as approaching to an outward position in the k-space~~applied to the

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object such that the number of application times of the pre-pulse for a central region in k-space is larger than the number of application times of the pre-pulse for an outer region in k-space;

a scan unit configured to scan the object using the pulse sequence memorized in the memorization unit;

an acquisition unit configured to acquire data ~~corresponding to~~from an MR signal ~~emanating~~obtained from the object in response to the scan performed by the scan unit ~~and to map the data in the k-space~~; and

an image ~~production means~~reconstruction unit configured to reconstruct the image from the data ~~mapped in the k-space~~acquired by the acquisition unit~~ so that the image is produced~~.

2. (Currently Amended) ~~The~~A magnetic resonance imaging system ~~according to~~ as in claim 1, wherein the pulse sequence ~~memorized in the memorization unit is formed to have~~includes the pre-pulse ~~is applied~~ only ~~to~~for data acquisition in a ~~desired~~ central region of ~~the~~ k-space.

3. (Currently Amended) ~~The~~A magnetic resonance imaging system ~~according to~~ as in claim 2, wherein the pre-pulse ~~is one selected from~~includes at least one of a fat suppression pulse, an IR (Inversion Recovery) pulse, an MT (Magnetic Transfer) pulse, a pre-saturation pulse, and a tagging ~~(Tag)~~ pulse.

4. (Currently Amended) ~~The~~A magnetic resonance imaging system ~~according to~~as in claim 3, wherein the pulse sequence ~~consists of~~is formed into a two-dimensional or three-dimensional FE (Gradient Echo)-system pulse train, the FE system including practice of an FE method and an FFE (Fast FE) method.

5. (Currently Amended) ~~The~~A magnetic resonance imaging system ~~according to~~as in claim 1, wherein the pulse sequence ~~memorized in the memorization unit is formed to have~~includes the pre-pulse applied such that, in a ~~desired~~ central region of ~~the~~ k-space, the pre-pulse is applied in a one to one correspondence ~~manner compared~~with respect to the RF excitation pulse, while, in an outer region of the ~~desired~~ central region, the pre-pulse is applied intermittently at a rate increasing as ~~advancing~~data acquisition advances outwardly in ~~the~~ k-space.

6. (Currently Amended) ~~The~~A magnetic resonance imaging system ~~according to~~as in claim 5, wherein the pre-pulse ~~is one selected from~~includes at least one of a fat suppression pulse, an IR (Inversion Recovery) pulse, an MT (Magnetic Transfer) pulse, a pre-saturation pulse, and a tagging ~~(Tag)~~ pulse.

7. (Currently Amended) ~~The~~A magnetic resonance imaging system ~~according to~~as in claim 6, wherein the pulse sequence ~~consists of~~is formed into a two-dimensional or three-dimensional FE (Gradient Echo)-system pulse train, the FE system including practice of an FE method and an FFE (Fast FE) method.

8. (Currently Amended) ~~The~~A magnetic resonance imaging system ~~according to~~as in claim 1, wherein the pre-pulse ~~is one selected from~~includes at least one of a fat suppression pulse, an IR (Inversion Recovery) pulse, an MT (Magnetic Transfer) pulse, a pre-saturation pulse, and a tagging ~~(Tag)~~ pulse.

9. (Currently Amended) ~~The~~A magnetic resonance imaging system ~~according to~~as in claim 8, wherein the pulse sequence ~~consists of~~is formed into a two-dimensional or three-dimensional FE (Gradient Echo)-system pulse train, the FE system including practice of an FE method and an FFE (Fast FE) method.

10. (Currently Amended) ~~The~~A magnetic resonance imaging system ~~according to~~as in claim 1, wherein the pulse sequence ~~consists of~~is formed into a two-dimensional or three-dimensional FE (Gradient Echo)-system pulse train, the FE system including practice of an FE method and an FFE (Fast FE) method.

11. (Currently Amended) A method for acquiring data from an object to be imaged in magnetic resonance imaging for producing an image based on the data mapped in a k-space, the data being acquired using a pulse sequence ~~applied to the object and formed to include~~including a pre-pulse, an RF excitation pulse, an encoding gradient pulse, and a reading gradient pulse, the method comprising ~~the steps~~:

scanning the object using the pulse sequence

~~of~~in which the encoding gradient pulse ~~has an encoding amount determined to allow a data acquisition position in the k-space to be directed~~is applied to the object such that data is acquired outwardly from a center of ~~the~~ k-space with respect to time,

~~of~~in which a train of pulses including the RF excitation pulse, the encoding gradient pulse, and the reading gradient pulse is ~~repeated to allow the number of times of data acquisition in the k-space to become larger as approaching to a central region of the k-space~~applied to the object such that the number of times of data acquisition in a central region in k-space is larger than the number of times of data acquisition in an outer region in k-space, and

~~of~~in which the pre-pulse is ~~formed to be reduced in an application rate to the RF excitation pulse as approaching to an outward position in the k-space~~ applied to the object such that the number of application times of the pre-pulse for a central region in k-space is larger than the number of application times of the pre-pulse for an outer region in k-space;

receiving an MR (magnetic resonance) signal emanating from the object in response to the scanning; and

mapping data corresponding to the MR signal into the k-space.

12. (Currently Amended) A computer program installed in a computer-readable memory in a magnetic resonance imaging system ~~and~~which when executed by a computer ~~of~~in the magnetic resonance imaging system ~~in order to~~ acquires data from an

object to be imaged using a pulse sequence ~~formed to include~~including a pre-pulse, an RF excitation pulse, an encoding gradient pulse, and a reading gradient pulse, the acquired data being mapped in ~~a~~ k-space,

wherein the pulse sequence is formed such that

the encoding gradient pulse has an encoding amount determined to allow ~~a data acquisition position in the k-space to be directed~~data to be acquired outwardly from a center of the k-space with respect to time,

a train of pulses including the RF excitation pulse, the encoding gradient pulse, and the reading gradient pulse is ~~repeated to allow the number of times of data acquisition in the k-space to become larger as approaching to a central region of the k-space~~ applied to the object such that the number of times of data acquisition in a central region in k-space is larger than the number of times of data acquisition in an outer region in k-space, and

the pre-pulse is ~~formed to be reduced in an application rate to the RF excitation pulse as approaching to an outward position in the k-space~~applied to the object such that the number of application times of the pre-pulse for a central region in k-space is larger than the number of application times of the pre-pulse for an outer region in k-space.

13. (Currently Amended) ~~The~~A computer program ~~according to~~as in claim 12, wherein the pulse sequence is formed to have the pre-pulse applied such that, in a ~~desired~~ central region of ~~the~~ k-space, the pre-pulse is applied in a one to one correspondence

~~manner compared~~ with respect to the RF excitation pulse, while, in an outer region of the ~~desired~~ central region, the pre-pulse is applied intermittently at a rate increasing as advancing outward in the k-space.

14. (Currently Amended) ~~The~~A computer program ~~according to~~as in claim 13, wherein the pre-pulse ~~is one selected from~~includes at least one of a fat suppression pulse, an IR (Inversion Recovery) pulse, an MT (Magnetic Transfer) pulse, a pre-saturation pulse, and a tagging ~~(Tag)~~ pulse.

15. (Currently Amended) ~~The~~A computer program ~~according to~~as in claim 12, wherein the pre-pulse ~~is one selected from~~includes at least one of a fat suppression pulse, an IR (Inversion Recovery) pulse, an MT (Magnetic Transfer) pulse, a pre-saturation pulse, and a tagging ~~(Tag)~~ pulse.

16. (Currently Amended) ~~The~~A computer program ~~according to~~as in claim 12, wherein the pulse sequence ~~consists of~~is formed into a two-dimensional or three-dimensional FE (Gradient Echo)-system pulse train, the FE system including practice of an FE method and an FFE (Fast FE) method.

17. (New) A magnetic resonance imaging system for producing an image based on three-dimensional data acquired from an object to be imaged, the data being acquired using a three-dimensional pulse sequence including a pre-pulse, an RF

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excitation pulse, an encoding gradient pulse, and a reading gradient pulse, the magnetic resonance imaging system comprising:

a memorization unit configured to memorize the three-dimensional pulse sequence

in which encoding gradient pulse is applied to the object such that the data is acquired outwardly from a center of k-space,

in which a train of pulses including the RF excitation pulse, the encoding gradient pulse, and the reading gradient pulse is applied to the object such that the number of times of data acquisition in the central region in k-space is larger than the number of times of data acquisition in an outer region in k-space, and

in which pre-pulse is applied to the object such that the number of application times of the pre-pulse for a central region in k-space is larger than the number of application times of the pre-pulse for an outer region in k-space;

a scan unit configured to scan the object using the three-dimensional pulse sequence memorized in the memorization unit;

an acquisition unit configured to acquire the data from an MR signal obtained from the object in response to the scan performed by the scan unit; and

an image reconstruction unit configured to reconstruct the image from the data acquired by the acquisition unit.

18. (New) A magnetic resonance imaging system as in claim 17, wherein the image reconstruction unit is configured to reconstruct the image based on a three-dimensional multi planar reconstruction (MPR) technique.

19. (New) A magnetic resonance imaging system as in claim 17, wherein the image reconstruction unit is configured to reconstruct the image and to further perform a maximum intensity projection (MIP) technique on the reconstruct image.

20. (New) A magnetic resonance imaging system as in claim 17, wherein the scan unit is configured to scan the object into which a contrast agent is injected for contrast enhanced MRA (magnetic resonance angiography).

21. (New) A magnetic resonance imaging system as in claim 17, wherein the pulse sequence is set for parallel imaging.

22. (New) A magnetic resonance imaging system according to claim 17, wherein the object is a human person and wherein, within a certain period of time during which the object is able to usually keep continuing his or her one-time breath hold, the scan unit is configured to scan the object using the three-dimensional pulse sequence and the acquisition unit is configured to acquire the data from the MR signal obtained from the object in response to the scan performed by the scan unit.

23. (New) A magnetic resonance imaging system as in claim 22, wherein the certain period of time is 20 seconds.

24. (New) A magnetic resonance imaging system as in claim 17, wherein the pulse sequence is set based on a half-Fourier reconstruction algorithm.

25. (New) A magnetic resonance imaging system as in claim 17, wherein the object is a human person and wherein both of the scan unit and the acquisition unit operates with a breath-hold technique which compel the object to perform a holding of the breath.

26. (New) A magnetic resonance imaging system as in claim 1, wherein the memorization unit is configured to memorize a pulse sequence having:

a train of pulses including the RF excitation pulse, the encoding gradient pulse, and the reading gradient pulse,

the train of pulses being set such that the number of times of data acquisition in k-space becomes larger as data acquisition approaches a central region of k-space is the largest in the number of times of data acquisition in the central region; and

pre-pulses which are set such that an application rate of the pre-pulse to the RF excitation pulse with respect to time becomes smaller as data acquisition moving away from a center in k-space.